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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/714,095	SITALASAI ET AL.	
	Examiner	Art Unit	
	Jeff Piziali	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2009 and 09 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9,11-33 and 35-37* is/are pending in the application.

4a) Of the above claim(s) *22-24,29,36 and 37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11-21,25-28,30-33 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. ***Applicant's election without traverse of Invention I (claims 1, 3-9, 11-21, 25-28, 30-33, and 35)*** in the reply filed on *18 February 2009* is acknowledged and appreciated.

2. ***Claims 36 and 37 are withdrawn*** from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on *18 February 2009*.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 3-9, 11-21, 25, 28, 31, 32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of ***Weiss (US 6,492,975 B1)*** in view of ***Schneider, Jr. (US 3,733,447 A)***. Please note: Claim order has been altered to reflect claim dependencies.

Regarding claim 35, ***Weiss*** discloses an input device [*Fig. 4; 1*] comprising:

a motion sensor [*a tilt switch -- see particularly Column 4, Line 5*] operatively coupled to the input device,

said motion sensor having a motion signal output [*tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position*]; and

a detection circuit [*Fig. 6; 11*] responsive to said motion signal output (*Column 5, Lines 43-58*) and

having a wake-up signal output[*a mouse disable/enable signal*] (*Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations*).

Weiss only mentions in passing using a tilt switch, and does not expressly disclose structural/mounting details of the tilt switch.

However, ***Schneider*** discloses an input device [*Fig. 6*] comprising:

a printed circuit board [*Fig. 1: 10*];

a motion sensor [*Fig. 7*] operatively coupled to the printed circuit board of the input device,

said motion sensor having a motion signal output [*Fig. 6: 23, 24*]; and

said motion sensor comprising:

a ball contact [*Fig. 3: 50*]; and

at least one stationary contact [*Fig. 1: 11, 11a, 11b, 11c, 11d, 11e, 11f and 11g*] formed directly on a surface of said printed circuit board of said device, wherein

said ball contact is in electrical contact with said at least one stationary contact (*see Column 3, Line 23 - Column 4, Line 27*).

Weiss and ***Schneider*** are analogous art, because they are from the shared field of tilt switch sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Weiss'*** generic tilt switch [***Weiss****: Column 4, Line 5*] with ***Schneider's*** tilt switch [***Schneider****: Fig. 6*], so as to provide a tilt switch that is nearly uniform motion responsive, simple in structure, rugged in construction, resistant to environmental oxidation,

small in size, and readily variable in sensitivity to tilting motions [***Schneider**: Column 1, Lines 48-52*].

Regarding claim 1, this claim is rejected by the reasoning applied in rejecting claim 35; furthermore, ***Weiss*** discloses a system [*Fig. 2; 20*] for a device [*Fig. 4; 1*] comprising:

a motion sensor [*a tilt switch -- see particularly Column 4, Line 5*] operatively coupled to said device, said motion sensor having a motion signal output [*tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position*]; and

a detection circuit [*Fig. 6; 11*] (*Column 5, Lines 43-58*) connected to the motion signal output and having a trigger signal output [*a mouse disable/enable signal*] (*Column 4, Lines 1-26*).

Schneider discloses a system for a device [*Fig. 6*], wherein the device includes

a printed circuit board [*Fig. 1: 10*], comprising:

a motion sensor [*Fig. 7*] operatively coupled to said printed circuit board of said device,

said motion sensor having a motion signal output [*Fig. 6: 23, 24*]; and

said motion sensor comprising:

a ball contact [*Fig. 3: 50*]; and

at least one stationary contact [*Fig. 1: 11, 11a, 11b, 11c, 11d, 11e, 11f and 11g*] formed directly on a surface of said printed circuit board of said device, wherein

said ball contact is in electrical contact with said at least one stationary contact (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 3, ***Weiss*** discloses said trigger signal output is a wake-up signal output (*Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations*).

Regarding claim 11, ***Schneider*** discloses said at least one stationary contact is printed on said printed circuit board (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 12, ***Schneider*** discloses said at least one stationary contact has a hole [*Fig. 7: 12*] in a center thereof.

Regarding claim 13, ***Schneider*** discloses the at least one stationary contact has an inclined surface toward a center thereof (*Fig. 8*).

Regarding claim 4, ***Weiss*** discloses said device is an input device (*Column 4, Lines 12-43*).

Regarding claim 9, ***Weiss*** discloses said input device is a wireless device (*Column 4, Line 32*).

Regarding claim 7, ***Weiss*** discloses said input device is a mouse (*Column 4, Lines 12-43*).

Regarding claim 8, ***Weiss*** discloses said mouse is an optical mouse (*Column 4, Lines 12-26*).

Regarding claim 5, ***Schneider*** discloses said motion sensor is a mechanical motion sensor (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 6, ***Schneider*** discloses said motion sensor is a tilt sensor (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 15, ***Schneider*** discloses said at least one stationary contact has a hole [*Fig. 7: 12*] in a center thereof, and

a sensitivity of said tilt sensor is adjusted by a size of the hole (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 25, ***Schneider*** discloses said ball contact is a conductive ball [*Fig. 8: 50*] (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 14, ***Schneider*** discloses a sensitivity of said tilt sensor is adjustable during manufacture of said tilt sensor (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 16, ***Schneider*** discloses the sensitivity of said tilt sensor is adjustable by a size of the ball contact (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 17, ***Schneider*** discloses the sensitivity of said tilt sensor is adjustable by a weight of the ball contact (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 18, ***Schneider*** discloses the sensitivity of said tilt sensor is adjustable by a conductivity of the ball contact (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 19, ***Schneider*** discloses a plurality of stationary contacts are formed directly on a surface of said printed circuit board of said device (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 20, ***Schneider*** discloses the plurality of stationary contacts are wedge-shaped elements arranged about a central point (*see Fig. 1*).

Regarding claim 21, ***Schneider*** discloses there are at least 2 stationary contacts (*see Fig. 1*).

Regarding claim 28, ***Schneider*** discloses said motion sensor further includes a housing [*Fig. 4: 40*] and

said housing is sealed (*see Column 3, Line 23 - Column 4, Line 27*).

Regarding claim 31, ***Weiss*** discloses said motion sensor comprises an electrical switch and said detection circuit detects a change in a state of whether said switch is opened or closed (*Column 4, Lines 1-26*).

Regarding claim 32, ***Weiss*** discloses said detection circuit comprises:

a motion detector [*Fig. 6; 11*] that determines if there is a change in the opened or closed state of the electrical switch [*tilt switch*]; and

a signal processing circuit having a latch circuit [*wherein switch 11 inherently latches whether or not the mouse is disabled/titled*], wherein

said latch circuit creates a signal of a particular level for a period of time to generate a wake-up signal [*a mouse disable/enable signal*] (*Column 5, Lines 43-58*).

7. Claims 26, 27, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Weiss (US 6,492,975 B1)*** and ***Schneider, Jr. (US 3,733,447 A)*** as applied respectively to claims 6 and 32 respectively, and further in view of ***Davis (US 4,196,429 A)***.

Regarding claim 26, neither ***Schneider*** nor ***Weiss*** expressly discloses a tilt switch having a gold-plated ball contact.

However, ***Davis*** does disclose a tilt switch having a gold-plated ball contact [*Fig. 2; 46*] (*Column 4, Lines 9-14*).

Schneider, ***Weiss***, and ***Davis*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Schneider's*** conductor ball [***Schneider****: Fig. 3: 50*] with ***Davis'*** gold plated contacts [***Davis****: Column 3, Lines 64 and Column 4, Line 11*] so as to provide a conductor having excellent electrical conductivity while minimizing oxidation [***Davis****: Column 4, Line 12*].

Regarding claim 27, neither ***Schneider*** nor ***Weiss*** expressly discloses a tilt switch having a gold-plated stationary contact.

However, ***Davis*** does disclose a tilt switch having gold-plated stationary contacts [*Fig. 2; 32 & 36*] (*Column 3, Lines 63-68*).

Regarding claim 33, neither ***Schneider*** nor ***Weiss*** expressly discloses a motion detector comprising two invertors for amplifying and converting the motion signal output from the motion sensor.

However, ***Davis*** does disclose a motion detector comprising two inverters [*Fig. 10; 98 & 108*] for amplifying and converting a motion signal output [*Fig. 10; at 7*] from a motion sensor [*Fig. 10; 70*] (*Column 5, Lines 18-64*).

Therefore, it would have been obvious to use ***Davis'*** hex inverter buffer amplifier circuit as ***Weiss'*** motion detector, so as to provide an inexpensive and small-sized motion detector [***Davis****: Column 5, Lines 45-47*].

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Weiss (US 6,492,975 B1)*** and ***Schneider, Jr. (US 3,733,447 A)*** as applied to claim 28 above, and further in view of ***Kato et al (US 5,837,951 A)***.

Regarding claim 30, neither ***Schneider*** nor ***Weiss*** expressly discloses a tilt switch housing being sealed with an adhesive.

However, ***Kato*** does disclose a tilt switch housing being sealed with an adhesive (*Fig. 35; Column 30, Lines 37-40*).

Schneider, ***Weiss***, and ***Kato*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Schneider's*** seals [***Schneider****: Column 3, Lines 58-66*] with ***Kato's*** seals [***Kato****: Column 30, Lines 37-40 and Column 33, Lines 47-52*] so as to securely seal the resulting tilt switch without need for welding work [***Kato****: Column 30, Lines 24-26*].

9. Claims 1, 3-9, 12-21, 25, 28, 31, 32, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of ***Weiss (US 6,492,975 B1)*** in view of ***Chou (US 6,559,396 B1)***.

Regarding claim 35, ***Weiss*** discloses an input device [*Fig. 4; 1*] comprising:

a motion sensor [*a tilt switch -- see particularly Column 4, Line 5*] operatively coupled to the input device,

said motion sensor having a motion signal output [*tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position*]; and

a detection circuit [*Fig. 6; 11*] responsive to said motion signal output (*Column 5, Lines 43-58*) and

having a wake-up signal output[*a mouse disable/enable signal*] (*Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations*).

Weiss only mentions in passing using a tilt switch, and does not expressly disclose structural/mounting details of the tilt switch.

However, ***Chou*** discloses an input device [*Fig. 7*] comprising:

a printed circuit board [*Fig. 7; 60*];

a motion sensor [*Fig. 7; 30 & 40 working in electrical/gravitational conjunction together*] operatively coupled to the printed circuit board of the input device (*Column 2, Line 66 - Column 3, Line 22*),

said motion sensor having a motion signal output [*either electrically switched-on or switched-off, depending upon conductive ball 30 position*]; and

said motion sensor comprising:

a ball contact [*Fig. 7; 30*]; and

at least one stationary contact [*Fig. 7; 40, 41, 42, 62*] formed directly on a surface of said printed circuit board of said device (*wherein conductive copper foil 62 is formed directly on insulative circuit board 60*), wherein

said ball contact is in electrical contact with said at least one stationary contact (*Column 2, Lines 1-33*).

Weiss and ***Chou*** are analogous art, because they are from the shared field of tilt switch sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Weiss'*** generic tilt switch [***Weiss**: Column 4, Line 5*] with ***Chou's*** tilt switch [***Chou**: Fig. 7; 100*], so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [***Chou**: Column 1, Lines 32-42*].

Regarding claim 1, this claim is rejected by the reasoning applied in rejecting claim 35; furthermore, ***Weiss*** discloses a system [*Fig. 2; 20*] for a device [*Fig. 4; 1*] comprising:

a motion sensor [*a tilt switch -- see particularly Column 4, Line 5*] operatively coupled to said device, said motion sensor having a motion signal output [*tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position*]; and

a detection circuit [*Fig. 6; 11*] (*Column 5, Lines 43-58*) connected to the motion signal output and having a trigger signal output [*a mouse disable/enable signal*] (*Column 4, Lines 1-26*).

Chou discloses a system for a device [*Fig. 7*], wherein the device includes

a printed circuit board [*Fig. 7; 60*], comprising:

a motion sensor [*Fig. 7; 30 & 40 working in electrical/gravitational conjunction together*] operatively coupled to said printed circuit board of said device (*Column 2, Line 66 - Column 3, Line 22*),

said motion sensor having a motion signal output [*either electrically switched-on or switched-off, depending upon conductive ball 30 position*]; and

said motion sensor comprising:

a ball contact [*Fig. 7; 30*]; and

at least one stationary contact [*Fig. 7; 40, 41, 42, 62*] formed directly on a surface of said printed circuit board of said device (*wherein conductive copper foil 62 is formed directly on insulative circuit board 60*), wherein

said ball contact is in electrical contact with said at least one stationary contact (*Column 2, Lines 1-33*).

Regarding claim 3, ***Weiss*** discloses said trigger signal output is a wake-up signal output (*Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations*).

Regarding claim 12, ***Chou*** discloses said at least one stationary contact has a hole [*Fig. 7; 43*] in a center thereof (*Column 3, Lines 39-60*).

Regarding claim 13, ***Chou*** discloses the at least one stationary contact has an inclined surface [*Fig. 7; 421*] toward a center thereof (*Column 3, Lines 61-67*).

Regarding claim 4, ***Weiss*** discloses said device is an input device (*Column 4, Lines 12-43*).

Regarding claim 9, ***Weiss*** discloses said input device is a wireless device (*Column 4, Line 32*).

Regarding claim 7, ***Weiss*** discloses said input device is a mouse (*Column 4, Lines 12-43*).

Regarding claim 8, ***Weiss*** discloses said mouse is an optical mouse (*Column 4, Lines 12-26*).

Regarding claim 5, ***Chou*** discloses said motion sensor is a mechanical motion sensor (*Column 1, Lines 6-11*).

Regarding claim 6, ***Chou*** discloses said motion sensor is a tilt sensor (*Column 1, Lines 6-11*).

Regarding claim 15, ***Chou*** discloses said at least one stationary contact has a hole [*Fig. 7; 43*] in a center thereof, and

a sensitivity of said tilt sensor is adjusted by a size of the hole (*Column 2, Lines 1-33 -- wherein hole size inherently impacts tilt switch sensitivity*).

Regarding claim 25, ***Chou*** discloses said ball contact is a conductive ball (*Column 1, Lines 6-11*).

Regarding claim 14, ***Chou*** discloses a sensitivity of said tilt sensor is adjustable during manufacture of said tilt sensor (*Column 2, Lines 17-33 -- wherein **Chou's** tilt switch is adjusted during manufacture to be less sensitive than a conventional tilt switch*).

Regarding claim 16, ***Chou*** discloses the sensitivity of said tilt sensor is adjustable by a size of the ball contact (*Column 2, Lines 1-33 -- wherein ball size inherently impacts tilt switch sensitivity*).

Regarding claim 17, ***Chou*** discloses the sensitivity of said tilt sensor is adjustable by a weight of the ball contact (*Column 2, Lines 1-33 -- wherein ball weight inherently impacts tilt switch sensitivity*).

Regarding claim 18, ***Chou*** discloses the sensitivity of said tilt sensor is adjustable by a conductivity of the ball contact (*Column 2, Lines 1-33 -- wherein ball conductivity inherently impacts tilt switch sensitivity*).

Regarding claim 19, ***Chou*** discloses a plurality of stationary contacts are formed directly on a surface of said printed circuit board of said device [*Fig. 7; 40*] (*Column 3, Lines 1-3*).

Regarding claim 20, ***Chou*** discloses the plurality of stationary contacts are wedge-shaped elements arranged about a central point (*Fig. 6*).

Regarding claim 21, ***Chou*** discloses there are at least 2 [*first and second*] stationary contacts [*Fig. 7; 40*] (*Column 3, Lines 1-3*).

Regarding claim 28, ***Chou*** discloses said motion sensor further includes a housing [*Fig. 7; 20*] and

said housing is sealed (*Column 4, Lines 12-15*).

Regarding claim 31, ***Weiss*** discloses said motion sensor comprises an electrical switch and said detection circuit detects a change in a state of whether said switch is opened or closed (*Column 4, Lines 1-26*).

Regarding claim 32, ***Weiss*** discloses said detection circuit comprises:

a motion detector [*Fig. 6; 11*] that determines if there is a change in the opened or closed state of the electrical switch [*tilt switch*]; and

a signal processing circuit having a latch circuit [*wherein switch 11 inherently latches whether or not the mouse is disabled/titled*], wherein

said latch circuit creates a signal of a particular level for a period of time to generate a wake-up signal [*a mouse disable/enable signal*] (*Column 5, Lines 43-58*).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Weiss (US 6,492,975 B1)*** and ***Chou (US 6,559,396 B1)*** as applied respectively to claim 1 above, and further in view of ***Schneider, Jr. (US 3,733,447 A)***.

Regarding claim 11, ***Chou*** arguably does not disclose said at least one stationary contact is printed on said printed circuit board.

However, ***Schneider*** discloses said at least one stationary contact is printed on said printed circuit board (*see Column 3, Line 23 - Column 4, Line 27*).

Chou and ***Schneider*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Schneider's*** printing technique to form ***Chou's*** stationary contacts, so as make inexpensive and readily prepared stationary contacts [***Schneider****: Column 1, Line 55 - Column 2, Line 42*].

11. Claims 26, 27, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Weiss (US 6,492,975 B1)*** and ***Chou (US 6,559,396 B1)*** as applied respectively to claims 6 and 32 respectively, and further in view of ***Davis (US 4,196,429 A)***.

Regarding claim 26, neither ***Chou*** nor ***Weiss*** expressly discloses a tilt switch having a gold-plated ball contact.

However, ***Davis*** does disclose a tilt switch having a gold-plated ball contact [*Fig. 2; 46*] (*Column 4, Lines 9-14*).

Chou, ***Weiss***, and ***Davis*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Chou's*** copper/steel conductor ball [***Chou****: Column 3, Lines 23-25*] with ***Davis'*** gold plated contacts [***Davis****: Column 3, Lines 64 and Column 4, Line 11*] so as to provide a conductor having excellent electrical conductivity while minimizing oxidation [***Davis****: Column 4, Line 12*].

Regarding claim 27, neither ***Chou*** nor ***Weiss*** expressly discloses a tilt switch having a gold-plated stationary contact.

However, ***Davis*** does disclose a tilt switch having gold-plated stationary contacts [*Fig. 2; 32 & 36*] (*Column 3, Lines 63-68*).

Regarding claim 33, neither ***Chou*** nor ***Weiss*** expressly discloses a motion detector comprising two invertors for amplifying and converting the motion signal output from the motion sensor.

However, ***Davis*** does disclose a motion detector comprising two inverters [*Fig. 10; 98 & 108*] for amplifying and converting a motion signal output [*Fig. 10; at 7*] from a motion sensor [*Fig. 10; 70*] (*Column 5, Lines 18-64*).

Therefore, it would have been obvious to use ***Davis'*** hex inverter buffer amplifier circuit as ***Weiss'*** motion detector, so as to provide an inexpensive and small-sized motion detector [***Davis****: Column 5, Lines 45-47*].

12. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Weiss (US 6,492,975 B1)*** and ***Chou (US 6,559,396 B1)*** as applied to claim 28 above, and further in view of ***Kato et al (US 5,837,951 A)***.

Regarding claim 30, neither ***Chou*** nor ***Weiss*** expressly discloses a tilt switch housing being sealed with an adhesive.

However, ***Kato*** does disclose a tilt switch housing being sealed with an adhesive (*Fig. 35; Column 30, Lines 37-40*).

Chou, ***Weiss***, and ***Kato*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to replace ***Chou's*** seals [***Chou****: Column 4, Lines 12-15*] with ***Kato's*** seals [***Kato****: Column 30, Lines 37-40 and Column 33, Lines 47-52*] so as to securely seal the resulting tilt switch without need for welding work [***Kato****: Column 30, Lines 24-26*].

Response to Arguments

13. Applicant's arguments filed *9 September 2008* have been fully considered but they are not persuasive.

The Applicant contends, "*Chou does not disclose 'at least one stationary contact formed directl2 on a surface of said printed circuit board' as recited in claim 1 (emphasis added), and similarly in independent claim 35. The cross-sectional view, above, of Chou's Fig. 7 clearly shows that the first and second contact bodies 42 are not formed directly on a surface of the support 60. The distal ends of terminal portions 41 are superimposed on a copper foil 62. The copper foil 62 in turn is mounted on the upper mount surface 61 of the support 60. (Chou, Fig. 7; Column 4, Lines 1-11). Clearly the copper foil 62 is not a part of the terminal portion 41, nor is it a part of the support 60. Therefore, terminal portions 41 are not directly formed on a surface of the support 60 either.*" (see Page 11 of the Response filed 9 September 2008). However, the examiner respectfully disagrees.

Chou discloses an input device [*Fig. 7*] comprising:

a printed circuit board [*Fig. 7; 60*];

a motion sensor [*Fig. 7; 30 & 40 working in electrical/gravitational conjunction together*] operatively coupled to the printed circuit board of the input device (*Column 2, Line 66 - Column 3, Line 22*),

said motion sensor having a motion signal output [*either electrically switched-on or switched-off, depending upon conductive ball 30 position*]; and

said motion sensor comprising:

a ball contact [*Fig. 7; 30*]; and

at least one stationary contact [*Fig. 7; 40, 41, 42, 62*] formed directly on a surface of said printed circuit board of said device (*wherein conductive copper foil 62 is formed directly on insulative circuit board 60*), wherein

said ball contact is in electrical contact with said at least one stationary contact (*Column 2, Lines 1-33*).

The Applicant contends, "*Applicants note that the Examiner relies on the 'entire document, including Column 3, Lines 4-22' to reject claim 11 which recites 'said at least one stationary contact is printed on said printed circuit board.' (Office Action, pg. 17). After careful review of the entirety of Chou, and in particular, Column 3, Lines 4-22, no support for the Examiner's ground for rejection can be found in the document, including the Examiner's cite to Column 3, Lines 4- 22*" (see Page 11 of the Response filed 9 September 2008). However, the examiner respectfully disagrees.

Chou arguably does not disclose said at least one stationary contact is printed on said printed circuit board.

However, ***Schneider*** discloses said at least one stationary contact is printed on said printed circuit board (*see Column 3, Line 23 - Column 4, Line 27*).

Chou and ***Schneider*** are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Schneider's*** printing technique to form ***Chou's*** stationary contacts, so as make inexpensive and readily prepared stationary contacts [***Schneider****: Column 1, Line 55 - Column 2, Line 42*].

Applicant's arguments with respect to claims 1, 3-9, 11-21, 25-28, 30-33, and 35 have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571)272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Jeff Piziali/
Primary Examiner, Art Unit 2629
30 April 2009